

**P 6.9 SEVERE WEATHER CLIMATOLOGY AND EVENT INFORMATION AVAILABLE USING THE NATIONAL CLIMATIC DATA CENTER'S WORLD WIDE WEB SITE**

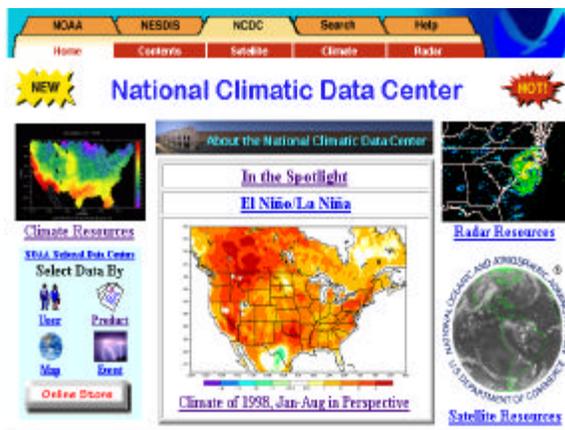
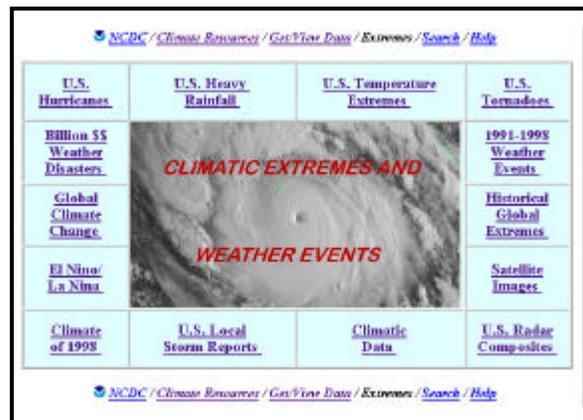
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**1. WHO WE ARE**

The National Climatic Data Center (NCDC) is part of the National Oceanic and Atmospheric Administration (NOAA). NCDC's mission is to manage and disseminate national and global environmental data. The center collects data from around the globe, archives over a half-million magnetic tapes/cartridges, 1.2 million microfiche, and 200 million paper records. The data center has more than 150 years of data on hand and adds 55 gigabytes of information daily.

The center maintains a World Wide Web (WWW) home page (Fig 1.) at the following address: <http://www.ncdc.noaa.gov>. The WWW site handles approximately 450,000 users per quarter and continues to grow. NCDC offline requests are handled via by telephone, electronic mail, letter, or fax. NCDC contacts include a wide spectrum of business, academic, and government users. This paper will deal with NCDC products that describe severe weather and climatology and focus on WWW delivery systems via the NCDC home page.



**Fig 2. Climatic Extremes and Weather Events Page**

**Fig 1. NCDC's WWW Home Page**

There are various ways to access on-line data at NCDC. The current NCDC Home page ([www.ncdc.noaa.gov](http://www.ncdc.noaa.gov)) was designed to have the same look and feel for users browsing the system and using the "Climate," "Satellite," and "Radar" resources from the NCDC Home page (Fig. 1). This paper will highlight the NCDC's Climatic Extremes and Weather Events Page (Fig. 2). NCDC's subtopics under the broader heading are broken down currently into fourteen sub-headings ranging from Global Climate Change, Climate of 1998, U.S. Radar Composites to U.S. Local Storm Reports. NCDC has several thousand WWW pages available to climate data users and NCDC has divided its climate data along logical WWW presentations. This paper concentrates on the pages dealing with severe weather.

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Users can find the answers to such questions as: What's the coldest measured temperature on the earth? How many tornadoes on average hit Texas? How many hurricanes hit the east coast of Florida during the 1900's? These and other types of severe weather climatology and event data are available using the Climatic Extremes and Weather Events Page (Fig. 2). Users have many options to find, explore and discover these extremes presented in various formats via the NCDC WWW site. NCDC is also continually updating and enhancing the main page features in (Fig. 2) and adding additional resources and information as time permits.



Fig 3. Get/View Online Climatic Data Page

Using the "Climatic Data" choice in (Fig. 2) users are pointed to the Get/View Climatic Data Page (Fig. 3). This page allows users many options to choose a location and visually "see" the climate for the time and period selected. For example, one can plot a time series of station data for various weather phenomena and find various extremes (Fig. 4).

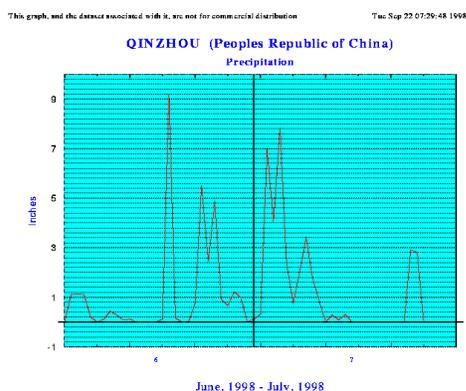


Fig 4. Daily Precipitation Extreme for Chinese Flooding, June-July 1998

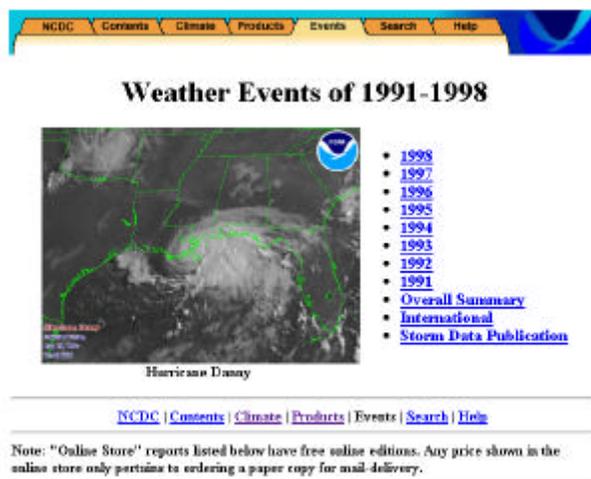


Fig 5. Weather Events of 1991-1998 Page

A good starting point for the general user who is looking for a chronology of special NCDC reports would be the option shown in (Fig. 5). This page links to nearly 50 reports on various weather events of 1991-1998 such as the "Unnamed Hurricane of 1991", the "El Nino Winter of '97-'98," and the "Climate of 1998".

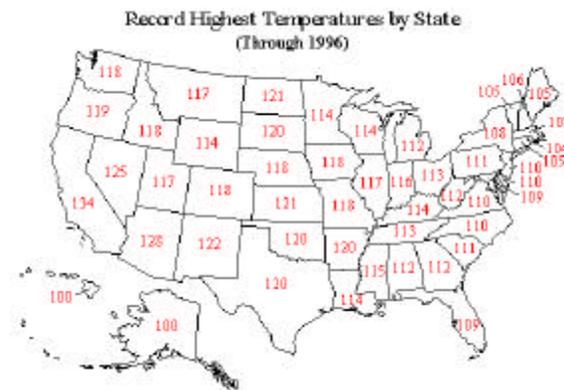


Fig 6. Record Highest Temperatures by State

For users who are hunting for state extremes and climatology of temperature, precipitation, hurricanes, or tornadoes, then the "U.S." links along the top of (Fig.2) should be used. These links will lead one to U.S. maps and tables giving information on these extreme parameters. If you are looking for global extremes, the "Historical Global Extremes" choice in (Fig. 2) will link to the map/table shown in (Fig. 7).

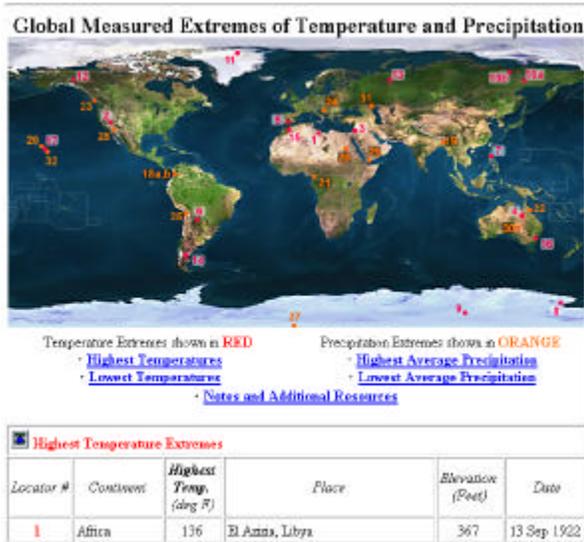


Fig 7. Global Extremes of Temperature and Precipitation



Fig 8. Local Storm Reports

One of NCDC's more popular publications is "Storm Data". The publication lists all the damages chronologically by state and time for a given month. The "U.S. Local Storm Reports" choice in (Fig. 2) links to (Fig. 8). The user can then select any state or all states, and any or all of fifteen weather-related damage categories (drought, hail, fog, t-storm, high winds, etc.), along with any month beginning with January 1996, and get a list of the damage reports associated with the event.

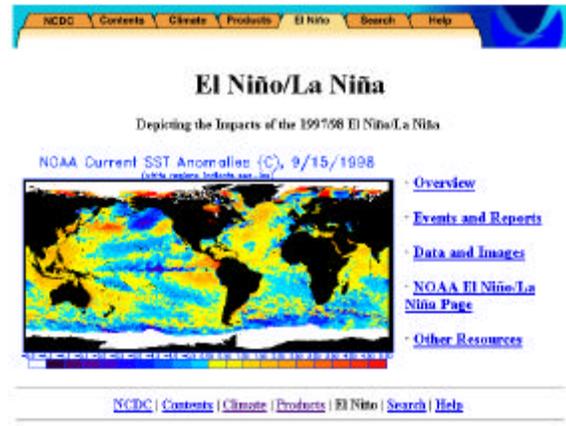


Fig 9. El Niño/La Niña Page

El Niño/La Niña has been a popular subject over the last year or so. El Niño/La Niña is a disruption of the ocean-atmosphere system in the Tropical Pacific having important consequences for weather and climate around the globe. This page provides a one-stop source for NOAA National Data Center (NNDC) reports and data related to El Niño and La Niña. Figure 9 links to on-line reports describing El Niño/La Niña-influenced weather events, to various datasets and images, and to other sites with additional information.

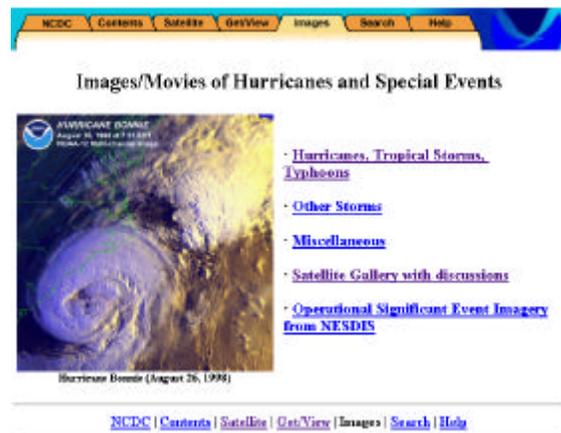
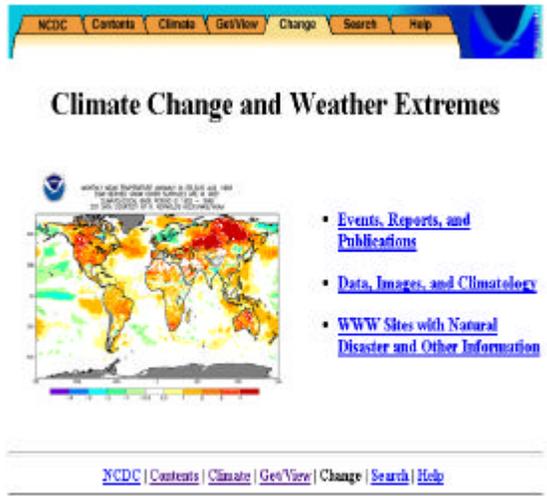


Fig 10. Images/Movies of Hurricanes and Special Events

Another popular item on the Extremes/Events Page (Fig. 2) is the "Satellite Images" section. This page contains hundreds of images of hurricanes and tropical storms and several dozen images for the 1998 season alone. The page also has images of additional storms and phenomena such as forest fires, volcanoes, eclipses, extratropical storms, and case study events useful in education and research.



**Fig 11. Climate Change and Weather Extremes**

Another of NCDC's more popular pages is "Global Climate Change" which can be accessed from the "Climatic Extremes and Weather Events Page" (Fig. 2). The climate change page contains links to many publications, reports and research dealing with global change (Fig. 11). Events, reports and publications such as the "Climate Variations Bulletin", "Global Climate of 1998", and "Indices of Climate Change for the U.S."; data, images, and climatology useful in climate change research; and external WWW sites with related information.

a compilation of billion dollar U.S. weather disasters that have occurred during the 1980-1998 period. The page highlights each disaster, the states/U.S. territories affected, and the direct and indirect damages/costs and deaths. This page also links to special reports on many of the events listed on the page.

### Conclusion

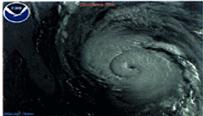
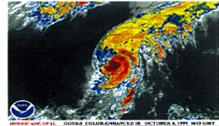
NCDC offers data, information, severe weather climatology and analysis products to the researcher, educator and general public. The Center has developed various WWW systems to allow users to easily retrieve these products and data via WWW systems. NCDC is frequently adding new and updated national and international databases and analyses for access via the WWW. NCDC's WWW page (Fig. 1) and the Climatic Extremes Page (Fig. 2) will continue to grow and evolve as NCDC continues to archive and disseminate climatic data and information to our various users. The Center's commitment as the "nations scorekeeper" in terms of global and national extremes will continue as part of the NCDC mission. Please visit the pages highlighted in this report and makes use of them in your research projects. NCDC welcomes feedback for new and improved products and welcomes suggestions to make our services even more valuable to our users.



**National Climatic Data Center**  
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06/04/98

The U.S. has sustained some very expensive weather-related disasters over the past 19 years. 27 of these disasters occurred during the 1988-1998 period with total damages/costs of over \$150 billion.\* All figures below reflect direct and indirect damages, costs, and deaths. Events are listed beginning with the most recent (reverse chronological order).

**Billion Dollar U.S. Weather Disasters 1980 - 1998**

<p>1. <b>Southeast Severe Weather</b> Winter-Spring 1998. Tornadoes and flooding related to El Niño in southeastern states; approximately \$1.0 billion damage/costs; at least 132 deaths.</p> <p>2. <b>Northern Plains Flooding</b> April-May 1997. Severe flooding in Dakota and Minnesota due to heavy spring snowmelt; approximately \$2.0 billion damage/costs; 11 deaths.</p> <p>3. <b>MS and OH Valleys Flooding &amp; Tornadoes</b> March 1997. Tornadoes and severe flooding hit the states of AH, MD, MS, TN, IL, IN, KY, OH, and WV; estimated \$1.0 billion damage/costs; 47 deaths.</p> <p>4. <b>West Coast Flooding</b> December 1998-January 1997. Torrential rains and snowmelt produce severe flooding over portions of CA, WA, OR, ID, NV, and MT; approximately \$3.0 billion damage/costs; 36 deaths.</p>  <p>5. <b>Hurricane Fran</b> September 1996. Category 3 hurricane strikes North Carolina and Virginia; over \$5.0 billion damage/costs; 37 deaths.</p> <p>6. <b>Southern Plains Severe Drought</b> Fall 1995 through Summer 1996. Severe drought in agricultural regions of southern plains—Texas and Oklahoma most severely affected; approximately \$5.0 billion damage/costs; no deaths.</p> <p>7. <b>Pacific Northwest Severe Flooding</b> February</p>	<p>1996. Very heavy, persistent rains and melting snow over Oregon, Washington, Idaho, and western Montana; approximately \$1.0 billion damage/costs; 9 deaths.</p> <p>8. <b>Blizzard of '96 Followed by Flooding</b> January 1996. Very heavy snowstorm over Appalachians, Mid-Atlantic, and Northeast; followed by severe flooding in parts of same area due to rain &amp; snowmelt; approximately \$3.0 billion damage/costs; 187 deaths.</p> <p>9. <b>Hurricane Opal</b> October 1995. Category 3 hurricane strikes Florida panhandle, Alabama, western Georgia, eastern Tennessee, and the western Carolinas; over \$3.0 billion damage/costs; 27 deaths.</p>  <p>10. <b>Hurricane Marilyn</b> September 1995. Category 2 hurricane devastates U.S. Virgin Islands; estimated \$2.1 billion damage/costs; 13 deaths.</p> <p>11. <b>Texas/Oklahoma/Louisiana/Mississippi Severe Weather and Flooding</b> May 1995. Torrential rains, hail, and tornadoes across Texas - Oklahoma and southeast Louisiana - southern Mississippi; with Dallas and New Orleans areas hardest hit; \$5.0-\$6.0 billion damage/costs; 32 deaths.</p> <p>12. <b>California Flooding</b> January-March 1995. Frequent winter storms caused periodic flooding across much of California; over \$3.0 billion damage/costs; 27 deaths.</p>
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**Fig 12. Billion Dollar Weather Disasters**

Another extremely popular page listed in Figure 2 is the "Billion \$\$ Weather Disasters". This page (Fig 12.) is

**NCDC can be contacted via the following:**

Telephone Number: 828-271-4800  
 Fax Number: 828-271-4876  
 WWW Home Page: www.ncdc.noaa.gov  
 Internet Access : orders@ncdc.noaa.gov